INSTRUCTIONS

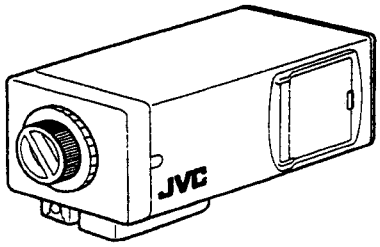
JVC

TK-1180E

COLOUR VIDEO CAMERA HEAD

BEDIENUNGSANLEITUNG: FARB-VIDEOKAMERAKOPF

MANUEL D'INSTRUCTIONS: TETE DE CAMERA VIDEO COULEUR



TK-1280E instructions see the TK-1280E service manual No. 50716.

INSTRUCTIONS

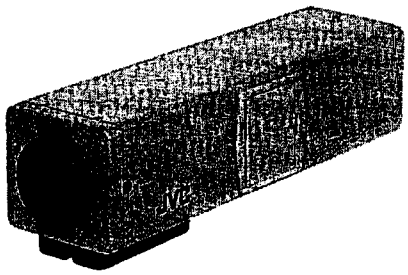
JVC

TK-1281EG

COLOUR VIDEO CAMERA

BEDIENUNGSANLEITUNG: FARB-VIDEOKAMERA

MANUEL D'INSTRUCTIONS: CAMERA VIDEO COULEUR



WARNING:
TO PREVENT FIRE OR SHOCK HAZARD, DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE.

CAUTION:
To prevent electric shock, do not open the unit. No user serviceable parts inside. Refer servicing to qualified service personnel.

CAUTION:
To prevent electric shocks and risk of fire hazards, do NOT use other than the specified power source.

This installation should be made by a qualified service person and should conform to all local codes.

Thank you for purchasing a JVC colour video camera head. To obtain the best results from your new camera, read this instruction manual carefully before use; retain the manual for future reference.

This instruction manual is divided into three sections:English, German, French.

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WARNING:
TO PREVENT FIRE OR SHOCK HAZARD, DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE.

WARNING–THIS APPLIANCE MUST BE EARTHED
IMPORTANT

The wires in this mains lead are coloured in accordance with the following code:

GREEN-AND-YELLOW:	EARTH
BLUE:	NEUTRAL
BROWN:	LIVE

As the colours of the wires in the mains lead of this apparatus may not correspond with the coloured markings identifying the terminals in your plug, proceed as follows. The wire which is coloured GREEN-AND-YELLOW must be connected to the terminal in the plug which is marked with the letter E or by the safety earth symbol ⏚ or coloured GREEN or GREEN-AND-YELLOW. The wire which is coloured BLUE must be connected to the terminal which is marked with the letter N or coloured BLACK. The wire which is coloured BROWN must be connected to the terminal which is marked with the letter L or coloured RED.

Thank you for purchasing a JVC colour video camera.
To obtain the best results from your new camera, read this instruction manual carefully before use; retain the manual for future reference.

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FEATURES

- CCD IRIS function to automatically set the brightness of the picture by changing the shutter speed of the camera according to the light incident when using a manual iris lens.
- AGC (Automatic Gain Control) function to automatically increase camera's sensitivity when the level of ambient light drops.
- Built-in back-light compensation function
- Either the galvanometric auto-iris lens or the video-level-sensing auto-iris lens can be used.
- TTL (Through-The-Lens) auto tracking white balance adjustment with preset luminous intensity (☼) and manual override (2 axes; G-Mg and R-B)
- Changeable C/CS lens mount allows selection from a wide range of lenses.
- Gen-lock and line-lock functions are provided.
- Built-in electronic shutter to allow switching to 9 shutter speeds.
- Convenient external flange-back adjustment function allows adjustment using a screwdriver.
- Compact, light-weight design greatly reduces the space required for installation.
- AC or DC operation.

PRECAUTIONS (USE)

When operation is incorrect or a malfunction is observed:

While operation, if any abnormal condition (strange sound, smell or smoke) or a malfunction (no picture, etc.) is observed, stop using the camera immediately, turn the power off, then call your local dealer.

Cleaning

Turn the power off and wipe off the dirt with a dry soft cloth. If it is extremely dirty, use furniture cleaner to wipe it off.
To clean the lens, use a blower of lens cleaning tissue (available from any camera dealer).

- **Do not point the camera at the sun.** This could damage the camera whether it is operating or not.
- **Do not shoot any source of bright light.** If the object contains very bright areas, bright vertical or horizontal lines may appear on the screen. This is called "smear", a phenomenon which often occurs with solid-state pickups, and is not a malfunction.
- **Do not disassemble the camera** and never touch parts inside the camera as you could damage the camera.
- **Do not allow anything to get inside the camera.** If a metal or flammable object gets inside the camera, it may cause a malfunction.
- **Handle with care.** Do not drop the camera or subject it to shocks and vibrations to avoid possible damage.

*Also read "Precautions (installation)" on page 21 carefully.

FEATURES

- Automatic Electronic Shutter function to automatically set the brightness of the picture by changing the shutter speed of the camera according to the light incident when using a manual iris lens.
- AGC (Automatic Gain Control) function to automatically increase camera's sensitivity when the level of ambient light drops.
- Built-in back-light compensation function
- Either the galvanometric auto-iris lens or the video-level-sensing auto-iris lens can be used.
- TTL (Through-The-Lens) auto tracking white balance adjustment with preset luminous intensity (☼) and manual override (2 axes; G-Mg and R-B)
- Changeable C/CS lens mount allows selection from a wide range of lenses.
- Gen-lock and line-lock functions are provided.
- Built-in electronic shutter to allow switching to 9 shutter speeds.
- Convenient external flange-back adjustment function allows adjustment using a screwdriver.
- Separated Y/C video signal output connector.
- 220 – 240 V AC operation.

PRECAUTIONS (USE)

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While operation, if any abnormal condition (strange sound, smell or smoke) or a malfunction (no picture, etc.) is observed, stop using the camera immediately, turn the power off, then call your local dealer.

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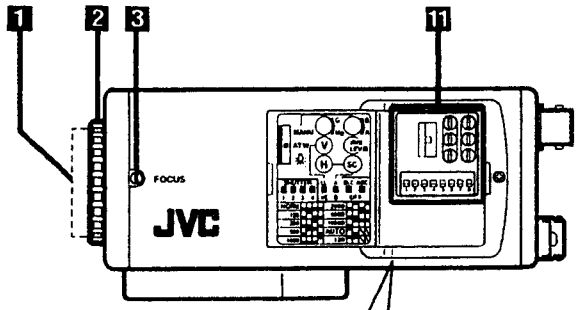
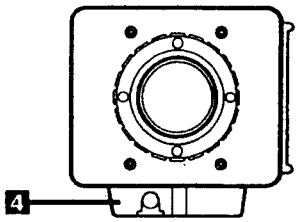
*Also read "PRECAUTIONS (INSTALLATION)" on page 20 carefully.

CONTROLS AND THEIR LOCATIONS

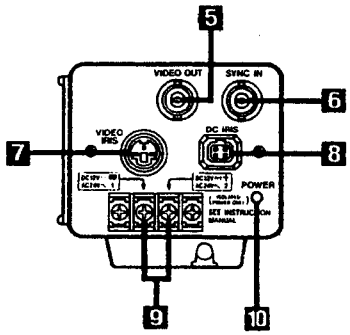
Side view



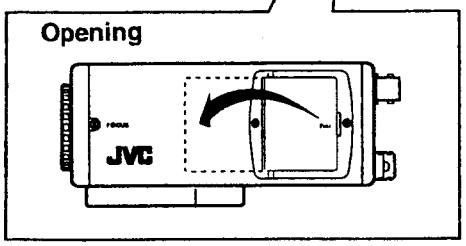
Front view



Rear view

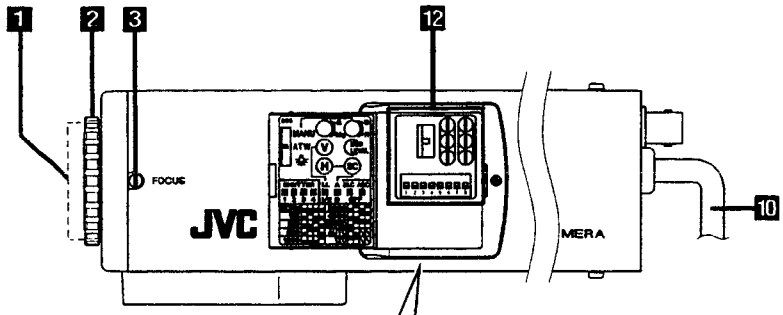


Opening

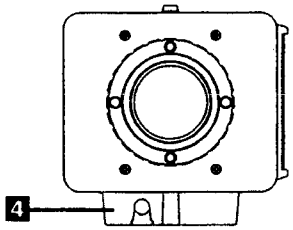


CONTROLS AND THEIR LOCATIONS

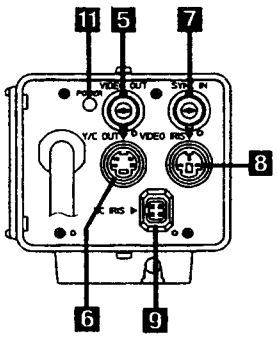
Side view



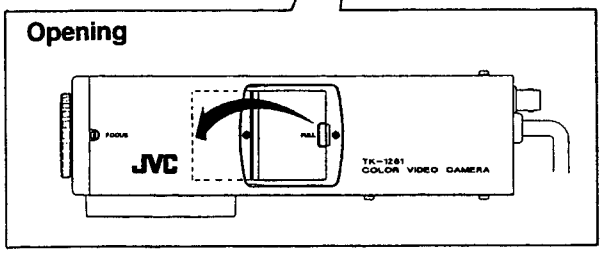
Front view



Rear view



Opening



1 Lens mount cap
Be sure to cap the lens mount when the lens is not mounted. Turn counterclockwise to remove.

2 C-mount adapter
To mount a C-mount lens a C-mount adapter is provided. To mount a CS-mount lens, remove the C-mount adapter. Any lens for 1/3″, 1/2″, 2/3″ or 1″ video camera can be used. Turn clockwise to remove it. Also refer to page 15.

3 FOCUS screw
A screw is provided to adjust and fix the flange-back (the distance from the lens mounting to the focal point). See page 16.

4 Tripod mounting base
This is the mounting base for installing the camera. See page 14 and 20.

5 VIDEO OUT connector
BNC connector that outputs a composite video signal. Connect to the video input connector of a monitor, switcher, etc.
- Use a coaxial cable for connection.

1 Lens mount cap
Be sure to cap the lens mount when the lens is not mounted. Turn counterclockwise to remove.

2 C-mount adapter
A C-mount adapter is provided to mount a C-mount lens. When mount a CS-mount lens, remove the C-mount adapter at first. Any lens for 1/2″, 2/3″ or 1″ video camera can be used. Then, turn clockwise it. Also refer to page 14.

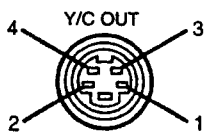
3 FOCUS screw
A screw is provided to adjust and fix the flange-back (the distance from the lens mounting to the focal point). See page 15.

4 Tripod mounting base
This is the mounting base for installing the camera. See page 13 and 19.

5 VIDEO OUT connector
BNC connector that outputs a composite video signal. Connect to the video input connector of a monitor, switcher, etc.
- Use a coaxial cable for connection.

6 Y/C OUT connector
Output connector for separated Y/C video signals. Connect to the S-VIDEO input connector of a video monitor, etc. If the plug on the cable is of a different type, replace it with the provided 4-pin plug.

Pin assignment: Y/C OUT connector (4-pin)



Pin No.	Signal
1	GND
2	GND
3	Y (Luminance, 1 Vp-p, 75 ohms)
4	C (Chrominance, 0.3 Vp-p (burst), 75 ohms)

6 SYNC IN connector

- BNC connector for external sync reference signal input such as composite video signal (VBS) or black burst signal (BB).
- Connect to the connector outputting the signal to be used as a reference for external sync.
- Use a coaxial cable for connection.
- When the sync reference signal is input, the camera automatically switches from the internal to external sync mode to perform gen-lock operation.

Caution:

- Before performing gen-lock operation with the external sync signal input, make sure to set the sync mode switch to "I/E" position. (See page 12.)
- When an external H/V sync signal is input, the camera automatically switches to H/V lock mode when the sync mode switch is set in LL position. (See page 12.)

Notes:

- If the external sync signal to be input is less than –4dB with respect to the reference level, sync operation is not possible.

Reference level	Composite video signal (VBS)	1.0 Vp-p*
	Black burst signal (BB)	0.45 Vp-p

* The video components of the signal do not matter.

- Gen-lock operation may become unstable using a signal containing severe jitter (vertical or horizontal picture vibrations) such as a video recorder playback signal.
- When gen-lock operation is performed, adjustment of horizontal phase and colour sub-carrier phase are required. (See page 13.)

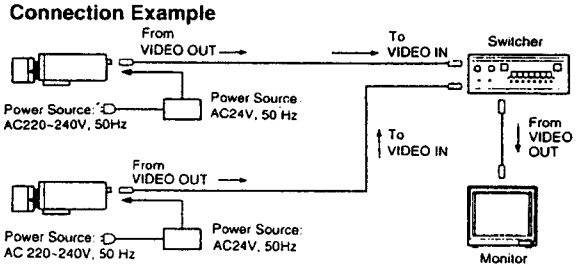
Connections for line-lock operation

- Set the sync mode switch to LL position. (See page 12.)
- When performing line-lock operation, the V phase adjustment is required. (See page 13.)

Caution:

- Do not input the external sync signal to the SYNC IN connector.

Connection Example



7 SYNC IN connector

- BNC connector for external sync reference signal input such as composite video signal (VBS) or black burst signal (BB).
- Connect to the connector outputting the signal to be used as a reference for external sync.
- Use a coaxial cable for connection.
- When the sync reference signal is input, the camera automatically switches from the internal to external sync mode to perform gen-lock operation.

Caution:

- Before performing gen-lock operation with the external sync signal input, make sure to set the sync mode switch to "I/E" position. (See page 11.)
- When an external H/V sync signal is input, the camera automatically switches to H/V lock mode when the sync mode switch is set in LL position. (See page 11.)

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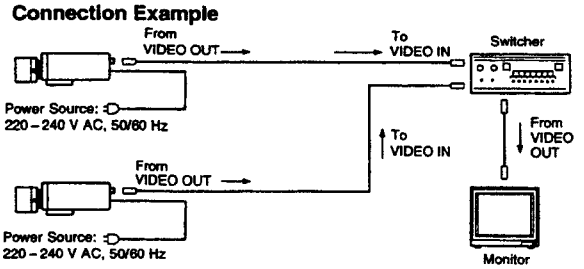
Connections for line-lock operation

- Set the sync mode switch to LL position. (See page 11.)
- When performing line-lock operation, the V phase adjustment is required. (See page 12.)

Caution:

- Do not input the external sync signal to the SYNC IN connector.

Connection Example

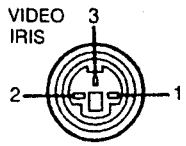


7 VIDEO IRIS connector

Connect the iris cable of an video-level-sensing auto-iris lens. If the plug on the cable is of a different type, replace it with the provided 3-pin iris plug.

Note:
- Use video-level-sensing auto-iris lens using DC 9V - 10V with power consumption of 50 mA or less.

Pin assignment: VIDEO IRIS connector (3-pin)

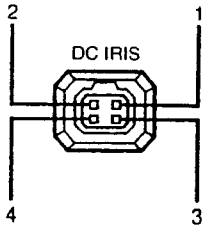


Pin No.	Signal
1	GND
2	Video (0.7 Vp-p high impedance, no sync)
3	DC 9V–10V (50 mA max.)

8 DC IRIS connector

Connect the iris cable of the galvanometric auto-iris lens. If the plug on the cable is of a different type, replace it with the provided 4-pin iris plug.

Pin assignment: DC IRIS connector (4-pin)



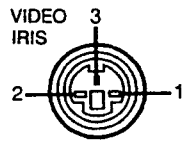
Pin No.	Signal
1	Control (–)
2	Control (+)
3	Drive (+)
4	Drive (–)

8 VIDEO IRIS connector

Connect the iris cable of an video-level-sensing auto-iris lens. If the plug on the cable is of a different type, replace it with the provided 3-pin iris plug.

Note:
- Use video-level-sensing auto-iris lens using DC 9 V – 10 V with power consumption of 50 mA or less.

Pin assignment: VIDEO IRIS connector (3-pin)

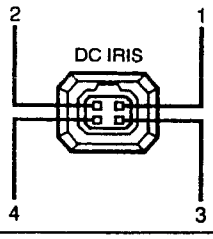


Pin No.	Signal
1	GND
2	Video (0.7 Vp-p high impedance, no sync)
3	DC 9V–10V (50 mA max.)

9 DC IRIS connector

Connect the iris cable of the galvanometric auto-iris lens. If the plug on the cable is of a different type, replace it with the provided 4-pin plug.

Pin assignment: DC IRIS connector (4-pin)



Pin No.	Signal
1	Control (–)
2	Control (+)
3	Drive (+)
4	Drive (–)

10 Power cord

Supply power from an AC outlet (220 to 240 V).

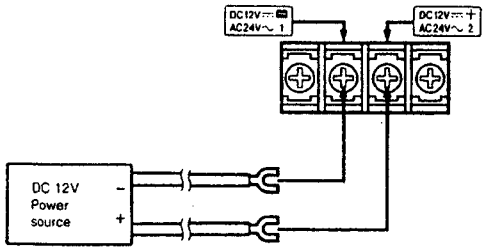
Caution:
- Be sure not to connect the power source until all other connections are complete. Do not turn the power of any equipment on until connections are completed.

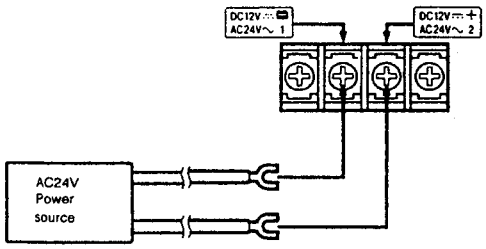
11 POWER indicator

Lights when the camera is powered.

9 Power input terminal (12V⎓ /24 V~)

Connect to a DC 12 V or AC 24 V power source. When DC 12 V power is to be supplied from an AC 220 V to 240 V power source, use the optional AC adapter AC-C624 (for the U.K.) or AC-C622 (for countries other than the U.K.). When operating with an AC 24 V power supply, use only an isolated power source.





Caution:

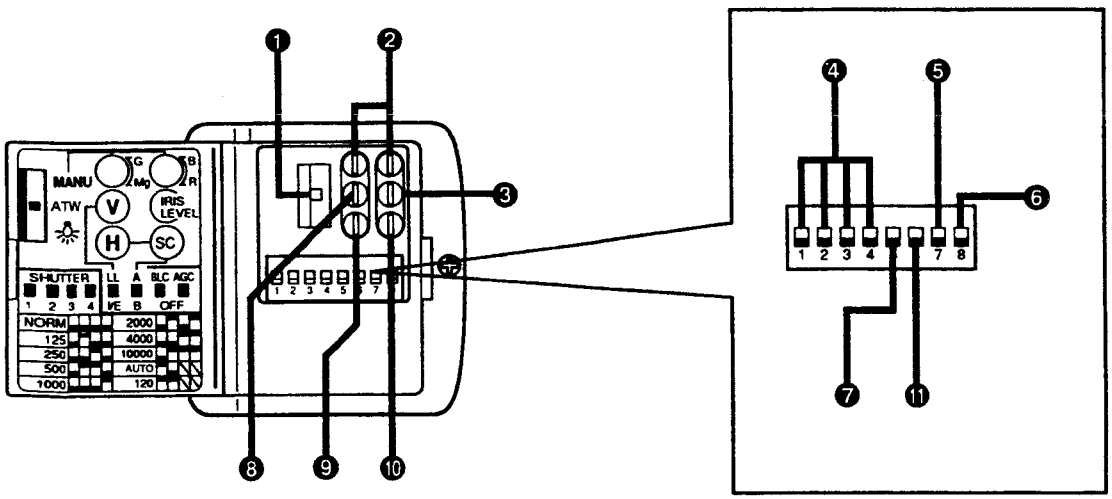
- Be sure not to connect the power source until all other connections are complete. Do not turn the power of any equipment on until connections are completed.
- The power voltage is specified as DC 12 V or AC 24 V.
- Be careful to connect the DC 12 V power supply, with the correct +/– polarity.
- Use a DC 12V power source with ripple voltage of less than 50 mV.
- Do not power the unit with both AC 24 V and DC 12 V at the same time. Be sure to connect only one power source.

10 POWER indicator

Lights when the camera is powered.

12 Picture adjustment section

AGC, BLC, Shutter mode, IRIS LEVEL, Sync mode, H/V phase, SC phase and White balance controls are provided. Perform the following adjustments and settings according to the shooting (or lighting) conditions.



11 Picture adjustment section

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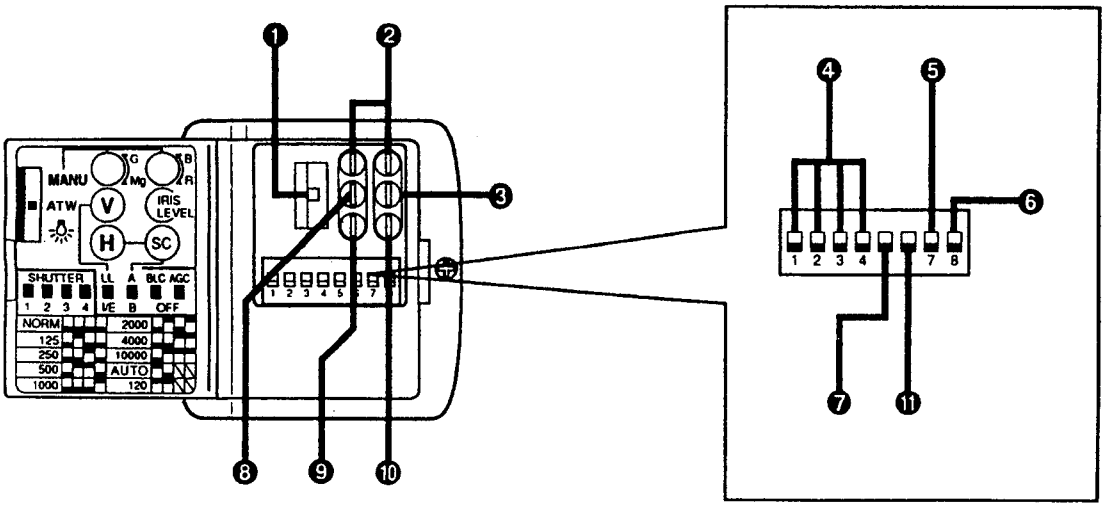

❶ White balance adjustment switch

This is used for changing the setting of the white balance.

MANU: Manual adjustment is possible.

ATW: Accepts different types of lighting (colour temperatures ranging from approx. 2850 K to 7000 K) using an automatic tracing system.
(TK-1281EG uses a TTL system that measures light entering the camera lens.)

☼ : For shooting under the artificial light such as halogen lamps (colour temperature approx. 3200 K).

Notes:

- When using the camera under a fluorescence light with high shutter speed, the white balance may change periodically.
- The automatic tracing system may not function properly when shooting with non-standard lighting or lighting with a colour temperature that exceeds the range of the camera. Because it uses a TTL system, if a coloured object is shot (especially one with a single colour) that fills most of the camera's field of view, the colour temperature may be judged incorrectly and the correct white balance adjustment may not be possible. In such a case, set to the "MANU" position.

❷ White balance adjustment controls

When the white balance adjustment switch is set to "MANU", the white balance can be adjusted manually.

G-Mg: Turn to the "G" side to increase the amount of green in the picture. Turn to the "Mg" side to increase the amount of magenta.

B-R: Turn to the "B" side to increase the amount of blue. Turn to the "R" side to increase the amount of red.

❸ IRIS LEVEL control

The brightness control of the monitor picture does not operate correctly, adjust using this control. Turn OFF the AGC switch (set to ON at the factory) to adjust the IRIS LEVEL control.

Monitor picture	Adjustment direction
To make it brighter	Turn clockwise.
To make it darker	Turn counterclockwise.

Notes:

- This function is activated when the camera SHUTTER mode select switch is set to AUTO position and when using the galvanometric auto-iris lens or the video-level-sensing auto-iris lens.
- Be careful not to turn the IRIS LEVEL control beyond its limits as this could cause a malfunction in the camera's auto-iris control.

❶ White balance adjustment switch

This is used for changing the setting of the white balance.

MANU: Manual adjustment is possible.

ATW: Accepts different types of lighting (colour temperatures ranging from approx. 2850 K to 7000 K) using an automatic tracing system.
(TK-1180E uses a TTL system that measures light entering the camera lens.)

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❷ White balance adjustment controls

When the white balance adjustment switch is set to "MANU", the white balance can be adjusted manually.

G-Mg: Turn to the "G" side to increase the amount of green in the picture. Turn to the "Mg" side to increase the amount of magenta.

B-R: Turn to the "B" side to increase the amount of blue. Turn to the "R" side to increase the amount of red.

❸ IRIS LEVEL control

The brightness control of the monitor picture does not operate correctly, adjust using this control. Turn OFF the AGC switch (set to ON at the factory) to adjust the IRIS LEVEL control.

Monitor picture	Adjustment direction
To make it brighter	Turn clockwise.
To make it darker	Turn counterclockwise.

Notes:
- This function is activated when the camera SHUTTER mode select switch is set to AUTO position and when using the galvanometric-iris lens or the video-iris lens.
- Be careful not to turn the IRIS LEVEL control beyond its limits as this could cause a malfunction in the camera's auto-iris control.

❹ SHUTTER mode select switch

This varies the shutter speed (the time the change is stored). Normally, when a fast-moving object is being shot, still or slow-motion played back pictures will be blurred. In this case, switching the shutter speed from the normal speed of 1/50 second to a faster speed allows each frame to be recorded with greater detail, at the higher speed.
When using a manual iris lens, the brightness of the picture image will be fixed by setting this switch in AUTO (Automatic electronic shutter) position, as the shutter speed is automatically varied according to the light incident.

Switch position	Shutter speed
NORM ▫▫▫▫	1/50 second Normally, set to this position.
120 ▪▪▫▫ (Switches No. 3 and 4 can be set either in upper or lower position)	1/120 second
125 ▫▪▫▫	1/125 second
250 ▫▫▪▫	1/250 second
500 ▫▪▪▫	1/500 second
1000 ▫▫▫▪	1/1000 second
2000 ▫▪▫▪	1/2000 second
4000 ▫▫▪▪	1/4000 second
10000 ▫▪▪▪	1/10000 second
AUTO ▪▫▫▫ (Switches No. 3 and 4 can be set either in upper or lower position.)	Automatic electronic shutter function (Do not set this switch in this position when using an auto-iris lens.)

Caution:
- The automatic electronic shutter function is not activated for a light object to be shot, such as in outdoor condition. In such a case, use the camera with the auto-iris or manual-iris.

Notes:
- Faster shutter speeds require more light than the normal speed. (In the 1000 mode, the sensitivity is approx. 1/20 that at normal speed; in the 10000 mode, approx. 1/200.)
- When shooting with the faster shutter speed, or when a light object is being shot by setting in AUTO position (the shutter speed becomes faster), the brightness and white balance may change periodically. Shooting with artificial lighting (especially fluorescent lights) will cause the pictures to flicker. Smear (bright horizontal or vertical lines) which can often be seen with solid-state pick-ups may appear in the picture.

❹ SHUTTER mode select switch

This varies the shutter speed (the time the change is stored). Normally, when a fast-moving object is being shot, still or slow-motion played back pictures will be blurred. In this case, switching the shutter speed from the normal speed of 1/50 second to a faster speed allows each frame to be recorded with greater detail, at the higher speed.
When using a manual iris lens, the brightness of the picture image will be fixed by setting this switch in AUTO (CCD iris) position, as the shutter speed is automatically varied according to the light incident.

Switch position	Shutter speed
NORM	1/50 second Normally, set to this position.
120 (Switches No. 3 and 4 can be set either in upper or lower position)	1/120 second
125	1/125 second
250	1/250 second
500	1/500 second
1000	1/1000 second
2000	1/2000 second
4000	1/4000 second
10000	1/10000 second
AUTO (Switches No. 3 and 4 can be set either in upper or lower position.)	CCD iris function (Do not set this switch in this position when using an auto-iris lens.)

Caution:
- The CCD iris function is not activated for a light object to be shot, such as in outdoor condition. In such a case, use the camera with the auto-iris or manual-iris.

Notes:
- Faster shutter speeds require more light than the normal speed. (In the 1000 mode, the sensitivity is approx. 1/20 that at normal speed; in the 10000 mode, approx. 1/200.)
- When shooting with the faster shutter speed, or when a light object is being shot by setting in AUTO position (the shutter speed becomes faster), the brightness and white balance may change periodically. Shooting with artificial lighting (especially fluorescent lights) will cause the pictures to flicker. Smear (bright horizontal or vertical lines) which can often be seen with solid-state pick-ups may appear in the picture.

❺ BLC (Back Light Compensation) switch

This function makes the iris focus on an object to be shot and is located near the center position of the screen.

Brightness area

Set this switch to "ON" at the time of back-light.
ON (upper side): Back-light compensation is activated.
The iris will be opened when the circumference is lighter than the center of the screen.
The iris will be closed when the circumference is darker than the center of the screen.
OFF (lower side): Back-light compensation is not activated.

Notes:
- This function is activated when the camera SHUTTER mode select switch is set to AUTO position and when using the galvanometric auto-iris lens or the video-level-sensing auto-iris lens.
- This function is not effective when the difference of the brightness of the center of the screen and its circumference is small.

❻ AGC (Automatic Gain Control) switch

This automatically increases the camera's sensitivity when the level of ambient light drops.
ON (upper side): AGC is activated.
OFF (lower side): AGC is not activated.

❼ Sync mode switch

The internal/external sync mode (automatic) or line-lock sync mode (or H/V lock mode) is available with the TK-1281EG. Set the sync mode switch correctly.

LL position:
In the line-lock setting, the camera's vertical synchronization can be driven by the 50 Hz AC signal in the power lines. To select power lines phase-locked sync, set the switch to the LL position.
Furthermore, when an external H/V sync signal is input, the camera automatically switches to the H/V lock mode.

Notes:
- Do not supply an external sync reference signal when using the camera in line-lock mode.
- In the line-lock sync mode, synchronization may not be correct for a few seconds after the power is turned on; this is not a malfunction.

I/E (internal/external) position:
Select internal/external sync by setting the sync mode switch to the I/E position. with this setting, when the external sync reference signal is input, the camera switches to the external sync mode, and when no signal is input, the camera switches to the internal sync mode automatically.

❺ BLC (Back Light Compensation) switch

This function makes the iris focus on an object to be shot and is located near the center position of the screen.

Brightness area

Set this switch to "ON" at the time of back-light.

ON (upper side): Back-light compensation is activated.
The iris will be opened when the circumference is lighter than the center of the screen.
The iris will be closed when the circumference is darker than the center of the screen.

OFF (lower side): Back-light compensation is not activated.

Notes:
- This function is activated when the camera SHUTTER mode select switch is set to AUTO position and when using the galvanometric auto-iris lens or the video-level-sensing auto-iris lens.
- This function is not effective when the difference of the brightness of the center of the screen and its circumference is small.

❻ AGC (Automatic Gain Control) switch

This automatically increases the camera's sensitivity when the level of ambient light drops.

ON (upper side): AGC is activated.

OFF (lower side): AGC is not activated.

❼ Sync mode switch

The internal/external sync mode (automatic) or line-lock sync mode (or H/V lock mode) is available with the TK-1180E. Set the sync mode switch correctly.

LL position:

In the line-lock setting, the camera's vertical synchronization can be driven by the 50 Hz AC signal in the power lines. To select power lines phase-locked sync, set the switch to the LL position.

Furthermore, when an external H/V sync signal is input, the camera automatically switches to the H/V lock mode.

Notes:
- Do not supply an external sync reference signal when using the camera in line-lock mode.
- In the line-lock sync mode, synchronization may not be correct for a few seconds after the power is turned on; this is not a malfunction.
- Line-lock sync operation is possible only when used with an AC power source (AC 24V, 50 Hz)

I/E (internal/external) position:

Select internal/external sync by setting the sync mode switch to the I/E position. with this setting, when the external sync reference signal is input, the camera switches to the external sync mode, and when no signal is input, the camera switches to the internal sync mode automatically.

❽ V phase adjustment

If the camera is to be used in the line-lock sync mode, the vertical phase may require adjustment to synchronize the vertical phase of the camera with other camera in the system. (Vertical phase is adjustable over the range of ±90°.) Make this adjustment when the vertical phase of the camera does not match with other cameras (or systems). For correct adjustment, use a multichannel oscilloscope. This vertical phase adjustment can only be made when the camera is operating in the line-lock sync mode

Notes:
- When AC power line frequency is of 60 Hz, the line-lock sync operation is not possible.
- This adjustment is necessary only when the line-lock sync operation is performed.

❾ H phase adjustment

For adjusting the horizontal phase when gen-lock (or H/V lock) operation is performed. Adjust with reference to other camera(s) in the system.

Notes:
- Gen-lock (or H/V lock) operation may become unstable using a signal containing severe jitter (vertical or horizontal picture vibrations) such as a video recorder playback signal.
- This adjustment is not necessary unless gen-lock (or H/V lock) operations are performed.

❿ SC phase fine adjustment control
⓫ SC phase coarse adjustment switch

For adjusting the colour sub-carrier phase when gen-lock operation is performed. Adjust by changing the setting of the SC phase coarse adjustment switch (A/B) in conjunction with the SC phase fine adjustment control with reference to other camera(s) in the system.

Notes:
- Gen-lock operation may become unstable using a signal containing severe jitter (vertical or horizontal picture vibrations) such as a video recorder playback signal.
- This adjustment is not necessary unless gen-lock operations are performed.

❽ V phase adjustment

If the camera is to be used in the line-lock sync mode, the vertical phase may require adjustment to synchronize the vertical phase of the camera with other camera in the system. (Vertical phase is adjustable over the range of ±90°.) Make this adjustment when the vertical phase of the camera does not match with other cameras (or systems). For correct adjustment, use a multichannel oscilloscope. This vertical phase adjustment can only be made when the camera is operating in the line-lock sync mode

Notes:
- When AC power line frequency is of 60 Hz, the line-lock sync operation is not possible.
- When adjusting the V phase control to observe the AC 24 V waveform, connect the positive pin of a probe to either of the power input connector.
- This adjustment is necessary only when the line-lock sync operation is performed.
- For more details, consult your local dealer.

❾ H phase adjustment

For adjusting the horizontal phase when gen-lock (or H/V lock) operation is performed. Adjust with reference to other camera(s) in the system.

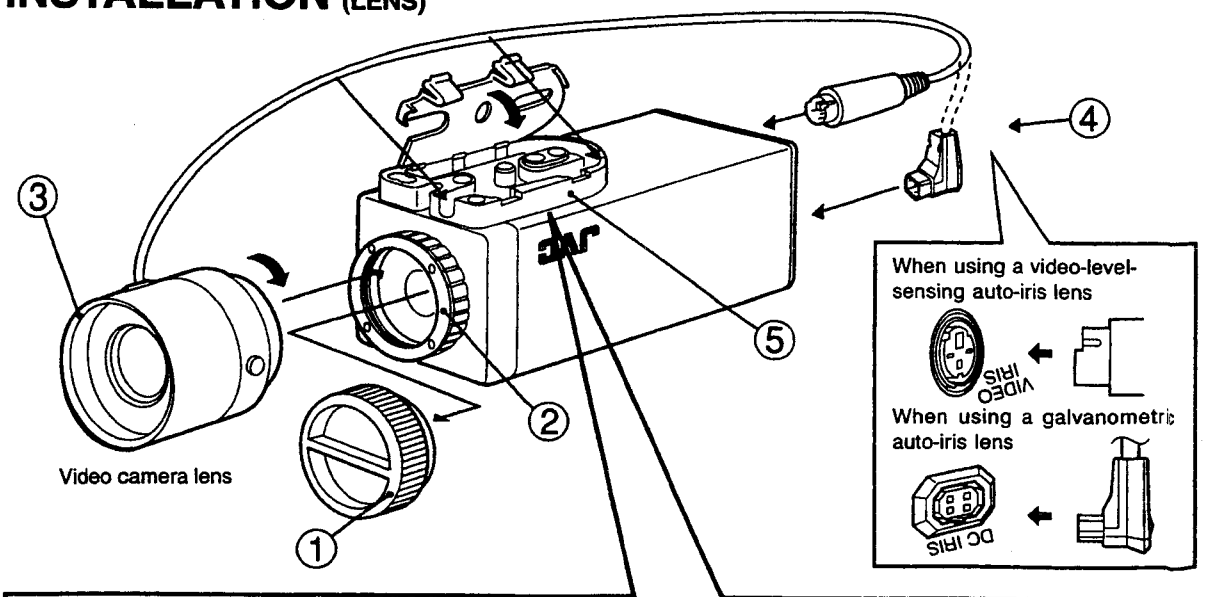
Notes:
- Gen-lock (or H/V lock) operation may become unstable using a signal containing severe jitter (vertical or horizontal picture vibrations) such as a video recorder playback signal.
- This adjustment is not necessary unless gen-lock (or H/V lock) operations are performed.
- For more details, consult your local dealer.

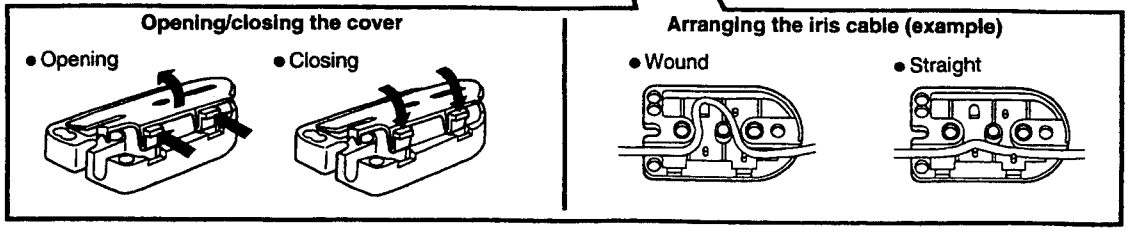
❿ SC phase fine adjustment control
⓫ SC phase coarse adjustment switch

For adjusting the colour sub-carrier phase when gen-lock operation is performed. Adjust by changing the setting of the SC phase coarse adjustment switch (A/B) in conjunction with the SC phase fine adjustment control with reference to other camera(s) in the system.

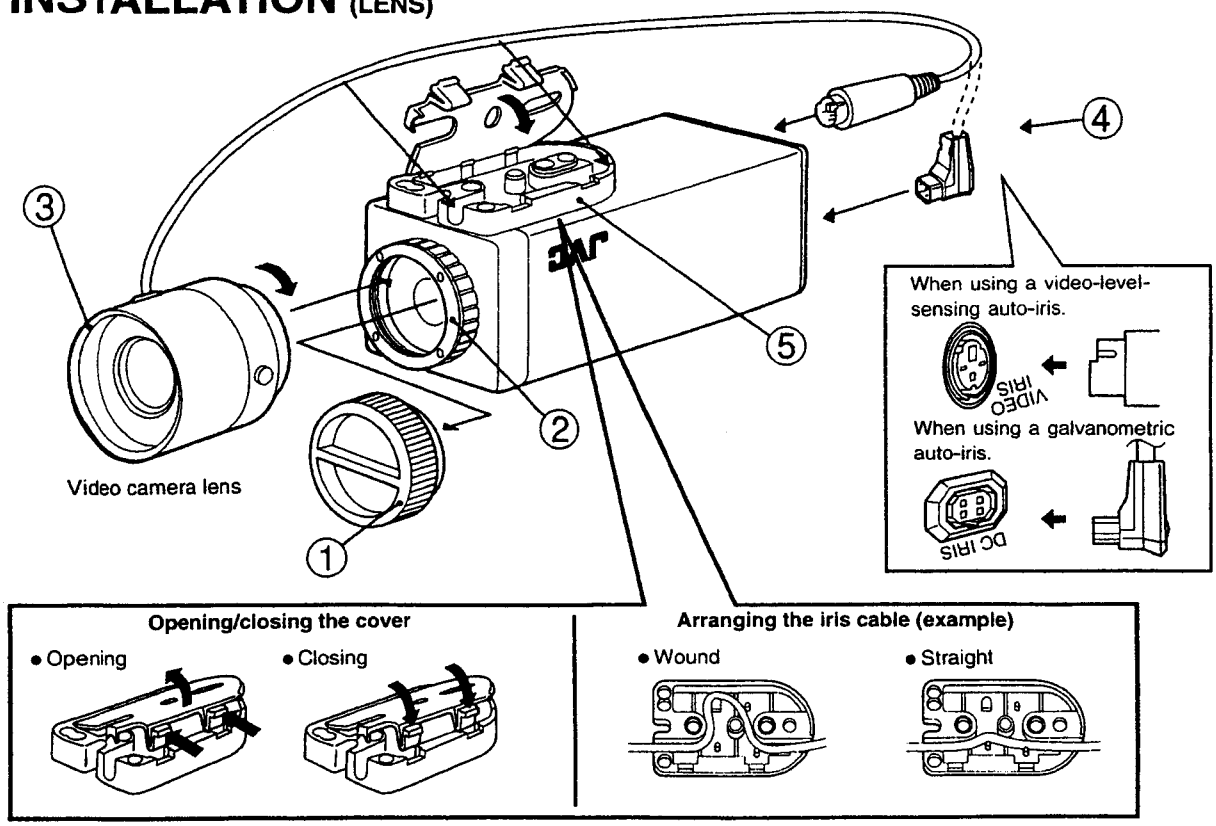
Notes:
- Gen-lock operation may become unstable using a signal containing severe jitter (vertical or horizontal picture vibrations) such as a video recorder playback signal.
- This adjustment is not necessary unless gen-lock operations are performed.
- For further details, consult your local dealer.

INSTALLATION (LENS)





INSTALLATION (LENS)

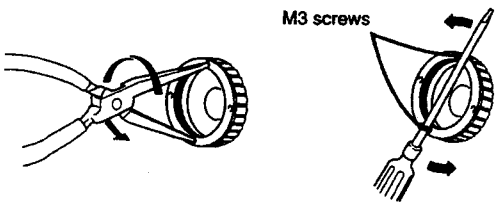


Mounting a lens

① Unscrew the lens mount cap to remove it.

② Attach or remove the C-mount adapter depending on the lens to be used.

- If the adapter is attached so tightly that is difficult to remove, use long-nosed pliers to remove it. Insert the tips of the pliers into the holes with no threads, then turn to remove. A screwdriver can also be used, as shown. Insert M3 screws into the holes so that the screwdriver has something to grip. (Use the same method when the adapter and lens are attached too tightly.)



③ Attach the lens to the lens mount. Secure it so that it does not become loose.

④ If the lens has an auto-iris mechanism, connect the iris cable to the VIDEO IRIS connector or DC IRIS connector.

- When installing a video-level-sensing auto-iris lens, connect the lens cable to the VIDEO IRIS connector.
- When installing a galvanometric auto-iris lens, connect the lens cable to the DC IRIS connector.

⑤ If the lens has an auto-iris mechanism, attach the auto-iris cable to the camera via the tripod mounting base (when the cable is too long).

Notes:

- Read the instruction manual of the lens carefully.
- If the auto-iris lens has a different type of plug, replace it with the plug provided.
- A cable with a diameter of 2 mm–4.5 mm can be secured with the tripod mounting base.
- When mounting a lens, it may require adjustment of the flange-back. Perform adjustment if necessary. See page 15.

Adjusting auto-iris lenses

Make this adjustment after connecting the camera to a power source and to a monitor.

① **Set AGC switch to OFF.**

② **When using a video-level-sensing auto-iris lens:**
Adjust the LEVEL control of the lens to obtain optimum pictures.
When using a galvanometric auto-iris lens:
Adjust the IRIS LEVEL control of the camera to obtain optimum pictures.

③ **Set AGC switch to ON**

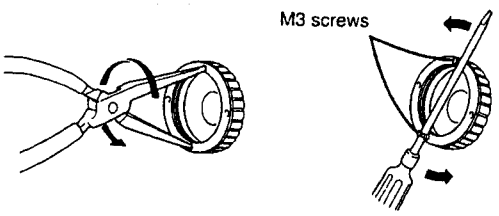
It is recommended that the AGC be used in the ON position after adjusting the video LEVEL control.

Mounting a lens

① **Unscrew the lens mount cap to remove it.**

② **Attach or remove the C-mount adapter depending on the lens to be used.**

- If the adapter is attached so tightly that is difficult to remove, use long-nosed pliers to remove it. Insert the tips of the pliers into the holes with no threads, then turn to remove. A screwdriver can also be used, as shown. Insert M3 screws into the holes so that the screwdriver has something to grip. (Use the same method when the adapter and lens are attached too tightly.)



③ **Attach the lens to the lens mount.** Secure it so that it does not become loose.

④ **If the lens has an auto-iris mechanism, connect the iris cable to the VIDEO IRIS connector or DC IRIS connector.**

- When installing a video-level-sensing auto-iris lens, connect the lens cable to the VIDEO IRIS connector.
- When installing a galvanometric auto-iris lens, connect the lens cable to the DC IRIS connector.

⑤ **If the lens has an auto-iris mechanism, attach the auto-iris cable to the camera via the tripod mounting base** (when the cable is too long).

Notes:

- Read the instruction manual of the lens carefully.
- If the auto-iris lens has a different type of plug, replace it with the plug provided.
- A cable with a diameter of 2 mm–4.5 mm can be secured with the tripod mounting base.
- When mounting a lens, it may require adjustment of the flange-back. Perform adjustment if necessary. See page 16.

Adjusting auto-iris lenses

Make this adjustment after connecting the camera to a power source and to a monitor.

① **Set AGC switch to OFF.**

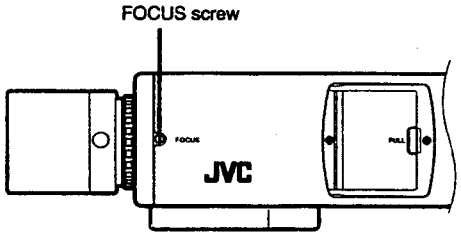
② **When using a video-level-sensing auto-iris lens:**
Adjust the LEVEL control of the lens to obtain optimum pictures.
When using a galvanometric auto-iris lens:
Adjust the IRIS LEVEL control of the camera to obtain optimum pictures.

③ **Set AGC switch to ON**

It is recommended that the AGC be used in the ON position after adjusting the video LEVEL control.

Flange-back adjustment

When a lens is mounted, adjustment of the flange back (the distance from the lens mounting position to the focal point) may sometimes be required. Adjust when the correct focus cannot be obtained with the lens focus ring.



With a fixed-focus lens

① Fully open the aperture and set the focus ring to "∞" (infinity).
- In the case of an auto-iris lens only, shoot a comparatively dark object so that the aperture is open.

② Turn the FOCUS screw to focus with a screwdriver.

Caution:

- Do not forcibly turn the FOCUS screw, as it will cause damage to the camera.

Note:

- When focusing, point the camera at an object that is more than 2000 times the focal length of the lens away from the front of the lens. (For example, if the focal length is 7.5 mm, the object should be more than 15 m away from the camera.)

With a zoom lens

① Fully open the aperture and set the lens to the maximum telephoto position. Then turn the focus ring to focus.
- In the case of an auto-lens only, shoot a comparatively dark object so that aperture is open.

② Set the lens to its maximum wide-angle position.

③ Turn the FOCUS screw to focus with a screwdriver.

④ Repeat steps ① – ③ until the difference between focusing positions ① and ② becomes smallest.

Caution:

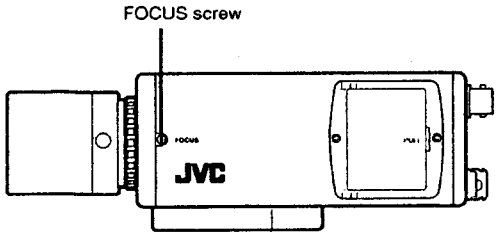
- Do not forcibly turn the FOCUS screw, as it will cause damage to the camera.

Note:

- When focusing, point the camera at an object that is more than 5 times the minimum focal distance away from the lens. (for example, if the minimum focal distance is 1m, the object should be more than 5 m away from the camera.)

Flange-back adjustment

When a lens is mounted, adjustment of the flange back (the distance from the lens mounting position to the focal point) may sometimes be required. Adjust when the correct focus cannot be obtained with the lens focus ring.



With a fixed-focus lens

① Fully open the aperture and set the focus ring to "∞" (infinity).
- In the case of an auto-iris lens only, shoot a comparatively dark object so that the aperture is open.

② Turn the FOCUS screw to focus with a screwdriver.

Caution:
- Do not forcibly turn the FOCUS screw, as it will cause damage to the camera.

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- When focusing, point the camera at an object that is more than 2000 times the focal length of the lens away from the front of the lens. (For example, if the focal length is 7.5 mm, the object should be more than 15 m away from the camera.)

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- Do not forcibly turn the FOCUS screw, as it will cause damage to the camera.

Note:
- When focusing, point the camera at an object that is more than 5 times the minimum focal distance away from the lens. (for example, if the minimum focal distance is 1m, the object should be more than 5 m away from the camera.)

Lens that can be used

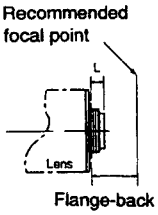
- The TK-1281EG can use 1/2″, 2/3″ or 1″ video camera C-mount lenses when the C-mount adapter (standard accessory) is installed. When removed, 1/2" video camera CS-mount lenses can also be used.
- Use a suitable lens for the required area of view. The area of view for different focal lengths can be obtained using the following formulae. (Use as reference data, when the distance between camera and object is more than 100 times the focal length.)

In the case of using a 1/2" lens

$$\text{Height of the area of view (m)} = \frac{4.8 \times \text{Distance between camera and object (m)}}{\text{Focal length of lens (mm)}}$$

$$\text{Width of the area of view (m)} = \frac{6.4 \times \text{Distance between camera and object (m)}}{\text{Focal length of lens (mm)}}$$

Notes:
- Use video-iris lenses powered by DC 9 V–10 V with a power consumption of 50 mA or less.
- L in the illustration below should be as shown in the following table. If L exceeds the value in the table, it may damage the inside of the camera and correct mounting may be impossible; **never** use such lenses. Be sure not to attach the C-mount adapter when using a CS-mount lens.



Lens	Flange-back	Distance L
C-mount lens*	17.526 mm	Less than 9 mm
CS-mount lens**	12.5 mm	Less than 4 mm

* With the C-mount adapter attached.
** With the C-mount adapter removed.

- Lenses designed for colour video cameras are recommended. Lenses designed for B/W cameras may have inferior colour reproduction and picture quality. In particular, they are not suitable for use outdoors or in very bright conditions. When using a lens with an ND filter attached, shooting may not be possible with the minimum required illumination specified.

Lens that can be used

- The TK-1180E can use C-mount lenses when the C-mount adapter (standard accessory) is installed. when removed, CS-mount lenses can also be used.
- Use a suitable lens for the required area of view. The area of view for different focal lengths can be obtained using the following formulae. (Use as reference data, when the distance between camera and object is more than 100 times the focal length.)

In the case of using a 1/3" lens

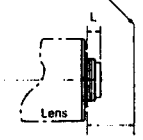
$$\text{Height of the area of view (m)} = \frac{3.6 \times \text{Distance between camera and object (m)}}{\text{Focal length of lens (mm)}}$$

$$\text{Width of the area of view (m)} = \frac{4.8 \times \text{Distance between camera and object (m)}}{\text{Focal length of lens (mm)}}$$

Notes:

- Use video-iris lenses powered by DC 9 V–10 V with a power consumption of 50 mA or less.
- L in the illustration below should be as shown in the following table. If L exceeds the value in the table, it may damage the inside of the camera and correct mounting may be impossible; **never** use such lenses. Be sure not to attach the C-mount adapter when using a CS-mount lens.

Recommended focal point



Flange-back

Lens	Flange-back	Distance L
C-mount lens*	17.526 mm	Less than 9 mm
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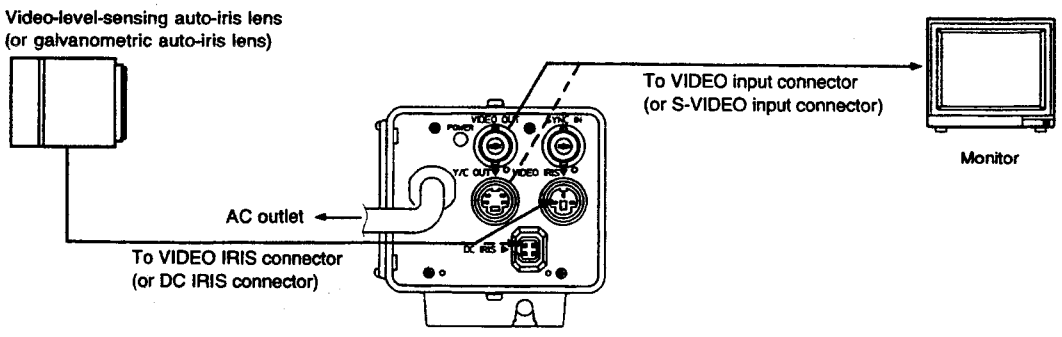
CONNECTION EXAMPLES

- **Do not turn any component's power on until all connections are completed.**
- **Also read the instruction manuals of all the equipment used carefully.**

Example 1: When a single camera is used



CONNECTION EXAMPLES

- **Do not turn any component's power on until all connections are completed.**
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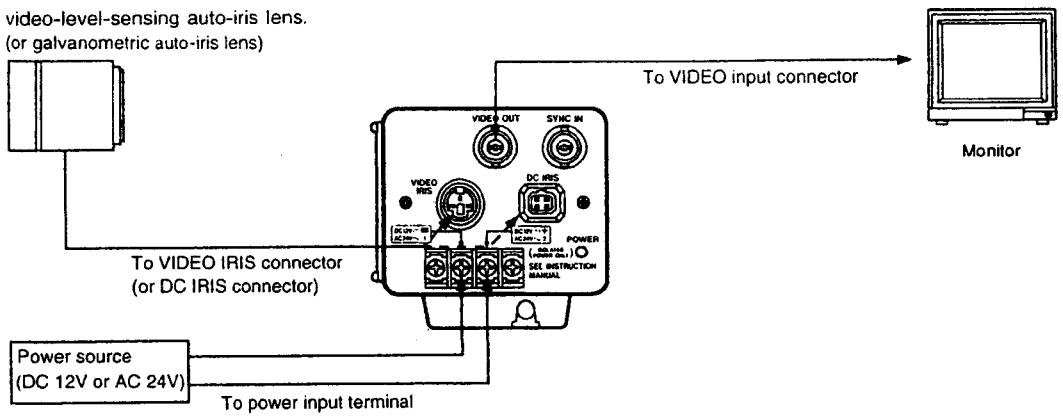
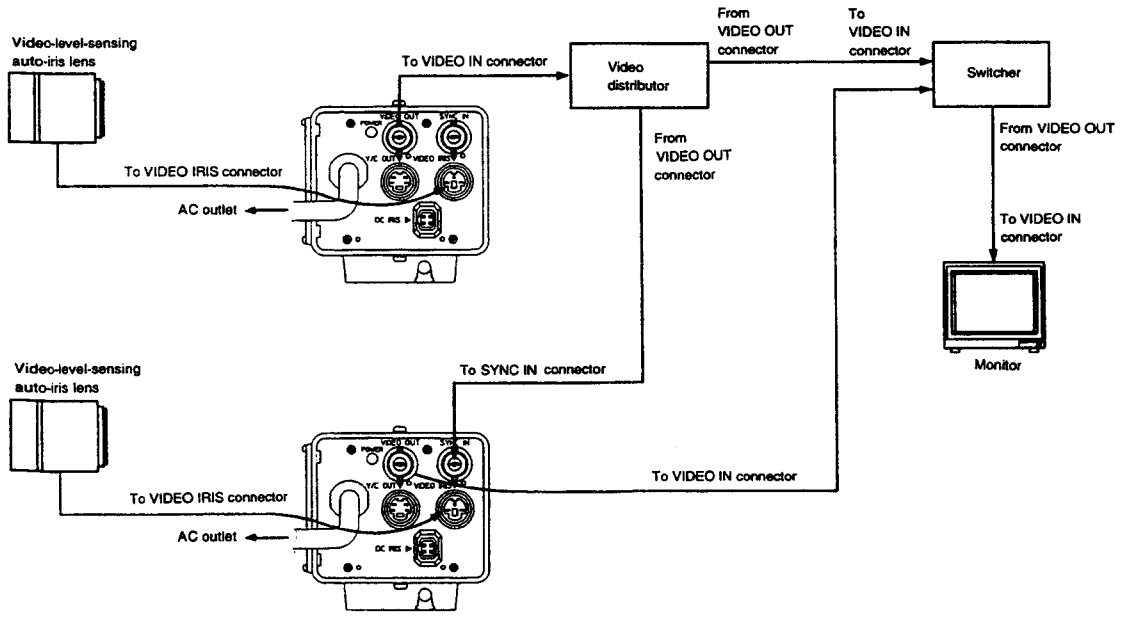
Example 1: When a single camera is used

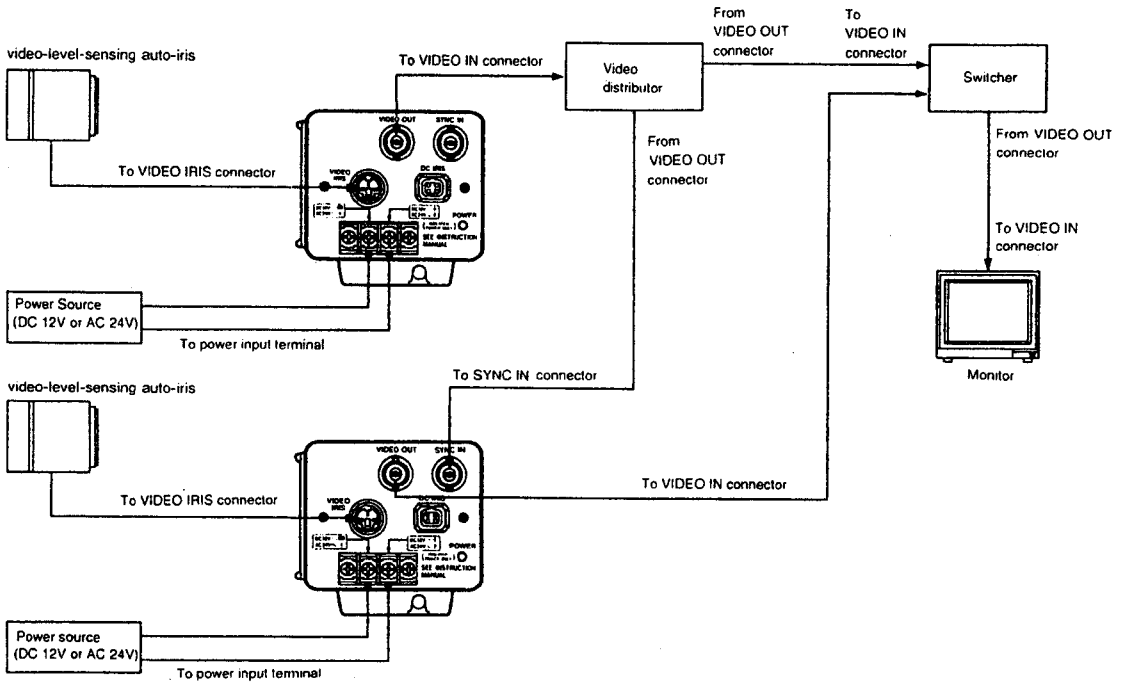


Example 2: When more than one camera is gen-locked



- For an example of connection showing line-lock operation, see page 6. Also, for the settings and adjustments required in line-lock operation, see page 11, 12.

Example 2: When more than one camera is gen-locked

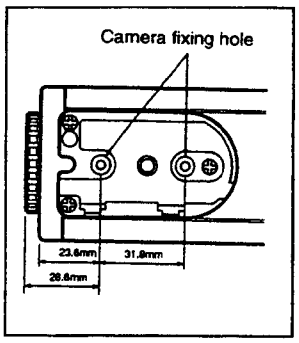


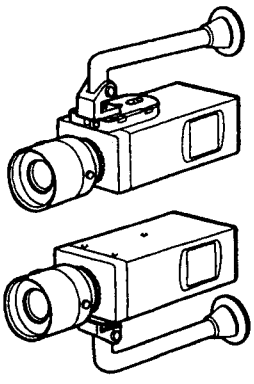
- For an example of connection showing line-lock operation, see page 6. Also, for the settings and adjustments required in line-lock operation, see page 12, 13.

INSTALLATION (CAMERA)

Installation

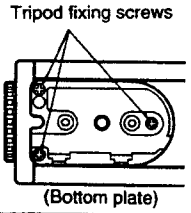
- Camera head can be installed on a tripod or a fixing part from the upper plate or the bottom plate by using the camera fixing hole (1/4", 20 UNC) on the tripod mounting base.
  The tripod mounting base has been installed on the bottom plate when shipped from factory. Move the tripod mounting base when installing the camera head from the upper plate.
- There are two camera fixing holes on the tripod mounting base. Use the two holes to increase the fixing intensity when installing the camera head specially.



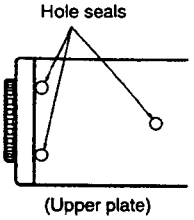


Tripod mounting base movement

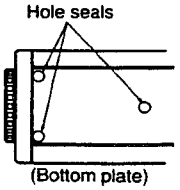
① Remove the tripod mounting base fixing screw (black×3) to remove the tripod mounting base.



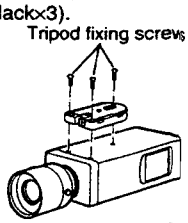
② Peel off the hole seals on the upper plate. (Do not throw them away.)



③ Attach the hole seals peeled off in step ② onto the holes on the bottom plate attaching the tripod mounting base.



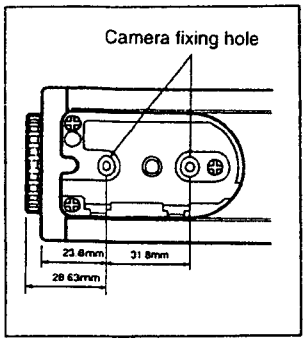
④ Attach the tripod mounting base on the upper plate of the camera head with the tripod mounting base fixing screws (black×3).

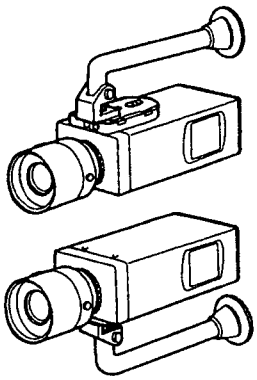


INSTALLATION (CAMERA)

Installation

- Camera head can be installed on a tripod or a fixing part from the upper plate or the bottom plate by using the camera fixing hole (1/4", 20 UNC) on the tripod mounting base. The tripod mounting base has been installed on the bottom plate when shipped from factory. Move the tripod mounting base when installing the camera head from the upper plate.
- There are two camera fixing holes on the tripod mounting base. Use the two holes to increase the fixing intensity when installing the camera head specially.





Tripod mounting base movement

① Remove the tripod mounting base fixing screw (black×3) to remove the tripod mounting base. Tripod fixing screws (Bottom plate)	③ Attach the hole seals peeled off in step ② onto the holes on the bottom plate attaching the tripod mounting base. Hole seals (Bottom plate)
② Peel off the hole seals on the upper plate. (Do not throw them away.) Hole seals (Upper plate)	④ Attach the tripod mounting base on the upper plate of the camera head with the tripod mounting base fixing screws (black×3). Tripod fixing screws

PRECAUTIONS (INSTALLATION)

- **Never expose the camera to rain or water.** Water can cause malfunctions and damage the camera.
- **Do not install the camera where the temperature could exceed the allowable range.** If used at extremely low or high temperatures, the camera could be damaged (allowable operating temperature range –10°C to +50°C).
- **Avoid installing in a humid or dusty place.** This could damage the camera.
- **Avoid installing in places where there is radiation.** This could damage CCD and other components and cause a malfunction.
- **Avoid installing in places where there are strong magnetic fields and electric signals.** The picture could be distorted.
- **Avoid installing in places where the camera would be subject to strong vibrations.** This could damage components and degrade the picture.

*Also read "PRECAUTIONS (USE)" on page 3 carefully.

PRECAUTIONS (INSTALLATION)

- **Never expose the camera to rain or water.** Water can cause malfunctions and damage the camera.
- **Do not install the camera where the temperature could exceed the allowable range.** If used at extremely low or high temperatures, the camera could be damaged (allowable operating temperature range −10°C to +50°C).
- **Avoid installing in a humid or dusty place.** This could damage the camera.
- **Avoid installing in places where there is radiation.** This could damage CCD and other components and cause a malfunction.
- **Avoid installing in places where there are strong magnetic fields and electric signals.** The picture could be distorted.
- **Avoid installing in places where the camera would be subject to strong vibrations.** This could damage components and degrade the picture.

* Also read "Precautions (use)" on page 3 carefully.

SPECIFICATIONS

Type	: Colour video camera
Signal system	: Based on PAL standard
Pickup element	: Interline-transfer system CCD solid-state image sensor (with complementary color filter)
Pickup colour system	: Single CCD complementary colour system
No. of effective pixels	: 752 (H) × 582 (V)
Pickup area	: 6.4(H) × 4.8 (V) mm
Scanning lines	: 625 lines, 2:1 interlaced
Scanning frequency	: (H) 15.625 kHz (V) 50 Hz
Sync system	: Internal, External, Line lock, H/V lock
Sync input	: Composite video signal (VBS)/ 1 Vp-p, 75 ohms terminated (or black burst signal (BB))
Video output	: Composite video signal: 1 Vp-p, 75 ohms, unbalanced Separated Y/C video signals: Y/1 Vp-p, 75 ohms, unbalanced C/0.3 Vp-p (burst), 75 ohms,unbalanced
Video S/N ratio	: 50 dB (2000 lux, AGC switch set to "OFF", at weighting)
Resolution	: 460 TV lines (horizontal)
Minimum required illumination	: 1.5 lux (f/1.2, AGC switch set to "ON")
Recommended subject illumination	: 2000 lux
Switching functions	: AGC (ON, OFF), Shutter mode (NORM, 1/120, 1/125, 1/250, 1/500, 1/1000,1/2000, 1/4000, 1/10000, AUTO) White balance mode (MANU, Automatic, halogen lamp), BLC mode (ON, OFF), sync mode (LL (H/V), I/E)
Adjusting functions	: Flange-back, manual white balance (2 axes; G-Mg, R-B), V phase, H phase, SC phase, IRIS LEVEL control
Lens mount	: C mount (with C-mount adapter)/ CS mount (without C-mount adapter)
Power requirement	: 220 – 240 V AC, 50/60 Hz
Power consumption	: 8.5 W
Operating temperature range	: −10°C to +50°C
Operating humidity	: Less than 90% Rh (noncondensing)
Maximum external dimensions	: Approx. 69(W) × 68(H) × 220(D) mm (without lens mount cap)
Weight	: Approx. 1,220 g
Cable length	: Approx. 2.4 m

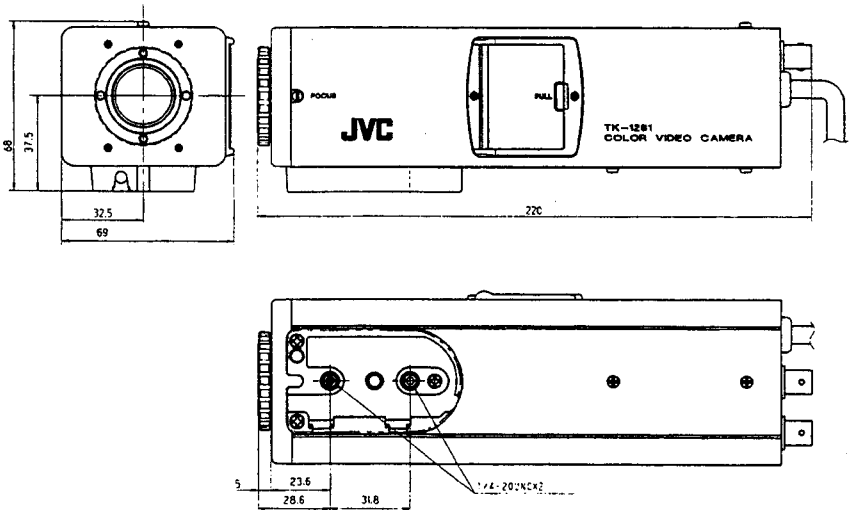
SPECIFICATIONS

Type	: Colour video camera head
Signal system	: Based on PAL standard
Pickup element	: Interline-transfer system CCD solid-state image sensor (with complementary colour filter)
Pickup colour system	: Single CCD complementary colour system
No. of effective pixels	: 500 (H) × 582 (V)
Pickup area	: 4.8(H) × 3.6 (V) mm
Scanning lines	: 625 lines, 2:1 interlaced
Scanning frequency	: (H) 15.625 kHz (V) 50 Hz
Sync system	: Internal, External, Line lock, H/V lock
Sync input	: Composite video signal (VBS)/ 1 Vp-p, 75 ohms terminated (or black burst signal (BB))
Video output	: Composite video signal: 1 Vp-p, 75 ohms, unbalanced
Video S/N ratio	: 46 dB (1000 lx, AGC switch set to "OFF", at weighting)
Resolution	: 330 TV lines (horizontal)
Minimum required illumination	: 2 lx (f/1.2, AGC switch set to "ON")
Recommended subject illumination	: 2000 lux
Switching functions	: AGC (ON, OFF), Shutter mode (NORM, 1/120, 1/125, 1/250, 1/500, 1/1000,1/2000, 1/4000, 1/10000, AUTO), White balance mode (MANU, Automatic, halogen lamp), BLC mode (ON, OFF), sync mode (LL (H/V), I/E)
Adjusting functions	: Flange-back, manual white balance (2 axes; G-Mg, R-B), V phase, H phase, SC phase, IRIS LEVEL control
Lens mount	: C mount (with C-mount adapter)/ CS mount (without C-mount adapter)
Power requirement	: DC 12V or AC 24V, 50 Hz
Power consumption (max.)	: 0,6A (DC 12V) 6,5 W (AC 24V)
Operating temperature range	: −10°C to +50°C
Operating humidity	: Less than 90% Rh (noncondensing)
Maximum external dimensions	: Approx. 69(W) × 65(H) × 150(D)mm (without lens mount cap)
Weight:	Approx. 500 g

Provided accessory	: Iris plug (3-pin) × 1 Iris plug (4-pin) × 1 Y/C plug (4 pin) × 1

- Design and specifications subject to change without notice.
- This colour video camera is designed to output video signals conforming to the PAL standard, so that it cannot be used with video recorders or colour monitors which use colour systems other than PAL.

Dimensions (unit: mm)



Provided accessory : Iris plug (3-pin) × 1
Iris plug (4-pin) × 1

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